

Dynamics of pulse waves in bubble liquids: Comparison between theory and experiment

Nigmatulin R., Gubaidullin D., Nikiforov A.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

The fundamentals of mechanics and thermal physics of bubble liquids and the most essential results on studying the wave processes in such media are presented. The sample is placed in a vessel with water between an acoustic signal source (the piezoelectric converter) and a hydrophone. On the basis of the analysis of the parameters of sound waves transmitted through a sample, the data on its properties are found. Although the second condition is not completely fulfilled, the theoretical curve of the dependence of the pressure at the hydrophone on the reduced time agrees well with the experiment. Thus, the theory under consideration can be used confidently for calculation of the distortion of the acoustic signal in the diagnostics of multilayer samples with bubble inclusions.

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